Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	**)**	
	)	
Revitalization of the AM Radio Service	**)**	**MB Docket No. 13-249**
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	)	

To the Commission:

Additional Comments of Nickolaus E. Leggett, N3NL

I am a certified electronics technician (ISCET and iNARTE) and an Extra Class amateur radio operator (call sign N3NL). I hold an FCC General Radiotelephone Operator License with a Ship Radar Endorsement. I am an inventor holding three U.S. Patents. My latest patent is a wireless bus for digital devices and computers (U.S. Patent # 6,771,935). I have a Master of Arts degree in Political Science from the Johns Hopkins University.

I am one of the original petitioners for the establishment of the Low Power FM (LPFM) radio broadcasting service (RM-9208 July 7, 1997 subsequently included in MM Docket 99-25). I am also one of the petitioners in the docket to establish a low power radio service on the AM broadcast band (RM-11287). I have filed a total of over 200 formal comments with the FCC over the years since the 1970s. I have filed comments with other Federal agencies as well including the USPTO, FAA, FERC, EPA, and the TSA.

This is my second set of comments in this docket. My first set of comments was submitted on November 5, 2013.

Converting AM Broadcasting to All-Digital Broadcasting

There is a specific problem for every user of existing AM radio receivers in the following idea that has been circulating in the FCC before.

... permitting or requiring stations to convert to all-digital AM operation...

This concept appears within paragraph 45 of this Notice of Proposed Rule Making, NPRM (13-249)

45. The foregoing proposals are not intended to be an exhaustive recitation of all the possible means of revitalizing the AM service. Rather, they constitute concrete proposals that can be implemented expeditiously to assist AM broadcasters in providing needed radio service to the public. We recognize that there are other ideas that have been proposed to assist in revitalizing AM radio. These include: changes to nighttime skywave protection for Class A AM stations; adopting rules to permit the permanent licensing of AM synchronous transmission systems; permitting or requiring stations to convert to all-digital AM operation; and modification of the pre-sunrise / post-sunset AM operating rules. These more complex suggested reforms would require additional comment, research, and analysis. We therefore encourage parties to submit comments in this docket for the purpose of advancing these and other specific proposals to revitalize the AM service. In particular, we ask parties to provide us with any proposals to improve the long-term future of the AM service. We emphasize that any such submissions should contain details as to the rule additions, deletions, or modifications sought, as well as specifics as to the reasons underlying any proposals submitted.

The Impact of All-Digital Broadcasting

If the Commission requires AM broadcast stations to convert to all-digital operation, they will make the existing stock of AM radio receivers useless. The simple diode detectors of the conventional AM radios will not be able to process the digital signals. This will impose a significant cost on all users of AM radios in the home, in portable uses, and in our cars. Literally millions of radios would become obsolete. For most of these radios, digital to analog signal converters (like those used for the digital TV conversion) would not be practical.

Impacts on Antique Radio Collectors

Making AM radios obsolete will impact heavily on the numerous collectors of old and antique radios. These radios range all the way from the crystal set era in the early 20th Century up through the AM radio receivers of the 1950s, 60s, and 70s. The cash value of these AM radios will be significantly reduced if there are no broadcast stations that they can receive.

In this situation, the radio collectors would be forced to operate their own Part 15 AM "broadcast stations" (low power devices) where they would transmit recordings of period music to their own collection of radios. Some organizations of radio collectors may even petition the Commission for authorization to operate traditional AM broadcast stations to serve the classic radios in a given city or cities.

Impacts on Youth and Students

Making existing AM radios obsolete will also hit hard at the young people who would otherwise be introduced to radio electronics by the simple AM radio kits and do-it-yourself projects. The simple crystal set or one-transistor radio kit would be replaced by rather baffling introductory digital radios that will not provide an effective introduction to the operation of discrete radio components. The whole subject of radio electronics would become shrouded in a cloud of digital mystery with little opportunity for the growth of basic real electronics knowledge. Few youth would learn about the actual flow of electrons in an electronic circuit. This would be a loss for the future of American engineering.

This negative situation could perhaps be partially overcome by the fact that short wave broadcasting would presumably continue with amplitude modulation broadcasting for some time into the future. So simple one-tube and one-transistor short wave radios could still be built and

used by youth and students. However, even this adaptation would be inhibited by the widespread prohibitions on outdoor antennas established by condominium associations and home owner associations here in the United States.

Amateur radio would provide opportunities for youth and students who desire an in-depth knowledge of electronics, discrete components, and electron flows. The educational importance of amateur radio would increase since the other options for learning radio electronics would be largely lost. However, amateur radio is also inhibited by condominium associations and home owner associations.

The Spirit of Radio

Much of the spirit of radio operation would be reduced by replacing the aesthetic appeal of AM radios using discrete radio components (such as resistors, capacitors, inductors, and tubes/transistors) with black box digital integrated circuits. The radio community will need to work hard to develop opportunities to learn detailed mental models of digital radio operations. At one time, the ARRL had an excellent online course that helped to accomplish this learning, but that course has been discontinued.

Recommended Action

The Commission should be very cautious about taking any steps that would make AM radios obsolete. Detailed notices with long and well publicized public comment periods are needed to fairly evaluate this issue and its subtle impacts on the future of radio.

Respectfully submitted,

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